

ABSTRACT OF THE DISCLOSURE

Various nanoscale logic gates are disclosed. An alternating current (“AC”) source is superimposed on a direct-current (“DC”), largely resistor-based nanoscale logic circuit in order to provide distinguishable, AC current or voltage logical output signals despite potentially narrow DC-voltage or DC-current ranges produced by the resistor-based nanoscale logic circuit. AC-enhanced AND, OR, NAND, and NOR nanoscale logic gates are provided as four specific embodiments of the present invention.